is configured to execute instructions and carry out operations associated with the host device **24**. For example, the control circuit **26** may control the reception and manipulation of input and output data between the components of the computing system **20**. The host device **24** may also include a hold switch **28** for activating or deactivating communications between the host device **24** and the user interface **22**. The host device may additionally include a display **30** configured to produce visual information such as text and graphics on a display screen **32** via display commands from the control circuit **26**. By way of example, the visual information may be in the form of a graphical user interface (GUI). Although not shown, the host device may additionally include one or more speakers or jacks that connect to headphones/speakers.

[**0052**] The control circuit may be widely varied. The control circuit may include one or more processors **27** that together with an operating system operate to execute computer code and produce and use data. The processor **27** can be a single-chip processor or can be implemented with multiple components. The computer code and data may reside within data storage that is operatively coupled to the processor. Data storage generally provides a place to hold data that is being used by the computer system **20**. By way of example, the data storage may include Read-Only Memory (ROM), Random-Access Memory (RAM), hard disk drive and/or the like. Although not shown, the control circuit may also include an input/output controller that is operatively coupled to the processor. The input/output controller generally operates by exchanging data between the host device **24** and the I/O devices that desire to communicate with the host device **24** (e.g., touch pad assembly **22**). The control circuit also typically includes a display controller that is operatively coupled to the processor. The display controller is configured to process display commands to produce text and graphics on the display screen **32** of the host device **24**. The input/output controller and display controller may be integrated with the processor or they may be separate components.

[**0053**] It should be noted that the control circuit **26** may be configured to perform some of the same functions as the controller **38**. For example, the control circuit **26** may perform conversion processes on the data received from the controller **38**. The conversion may be performed on raw data or on already converted data.

[**0054**] **FIG. 3** is a flow diagram of signal processing **50**, in accordance with one embodiment of the invention. By way of example, the signal processing **50** may be performed by the computing system shown in **FIG. 2**. Signal processing **50** generally begins at block **52** where a user input is produced at the user interface **22**. The user input is typically based on signals generated by the sensor arrangement of the touch buttons and touchpad. The user input may include raw data. The user input may also include filtered or converted data.

[**0055**] Following block **52**, the processing proceeds to block **54** where the user input is reported to the control circuit of the host device. The user input may contain both button and position data or it may only contain button data or position data. The user input is typically reported when a change is made and more particularly when a desired change is made at the user interface (filtered). For example, button data may be reported when the button status has changed and position data may be reported when the position of a finger has changed.

[**0056**] Following block **54**, the processing proceeds to block **56** where an action is performed in the host device based on the user input. The actions are typically controlled by the control circuit of the host device. The actions may include making selections, opening a file or document, executing instructions, starting a program, viewing a menu, and/or the like. The actions may also include moving an object such as a pointer or cursor on a display screen of the host device **24**.

[**0057**] **FIG. 4** is a flow diagram of touch pad processing **60**, in accordance with one embodiment of the invention. Touch pad processing **60** generally begins at block **62** where at least one control object is displayed on a graphical user interface. The control object may be a cursor, slider bar, image or the like. By way of example, the GUI may be displayed on the display **30** of the host device **24**. The GUI is typically under the control of the processor of the host device **24**.

[**0058**] Following block **62**, the processing proceeds to block **64** where an angular or radial referenced input is received. By way of example, the angular or radial referenced input may be produced by the user interface **22** and received by the processor of the host device **24**. The angular or radial referenced input may be raw data formed by the sensor arrangement or converted data formed at the controller. Furthermore, the raw or converted data may be filtered so as to reduce a busy data stream.

[**0059**] Following block **64**, touch pad processing proceeds to block **66** where the control object is modified based on the angular or radial referenced input. For example, the direction that a control object such as a football player in a football game is moving may be changed from a first direction to a second direction or a highlight bar may be moved through multiple images in a photo library. The modification is typically implemented by the processor of the host device.

[**0060**] **FIG. 5** is a flow diagram of a touch pad processing **70**, in accordance with one embodiment of the invention. By way of example, touch pad processing may be performed by the controller shown in **FIG. 2**. Furthermore, it may be associated with blocks **52**/**54** and **62** shown in **FIGS. 3 and 4**. Touch pad processing **70** generally begins at block **72** where a current user location is received. The current user location corresponds to the current location of the user's finger on the touch pad. For example, the controller may detect the changes in sensor levels at each of the native sensor coordinates and thereafter determine the current location of the user's finger on the touch pad based on the change in sensor levels at each of the native sensor coordinates.

[**0061**] Following block **72**, the process flow proceeds to block **74** where a determination is made as to whether the current user location is within a threshold from the last user location, i.e., the user location that precedes the current user location. In some cases, the current user location is compared to the last user location to determine the difference in user location, i.e., how much movement occurred between the current and last readings. If the current user location is